

**SEMICONDUCTOR LASER ELEMENT AND FABRICATION THEREOF**

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**Abstract**

**PURPOSE:** To achieve a technology for forming a resonator structure essential for a laser diode in order to realize a short wavelength semiconductor laser element, corresponding to a color from blue green to violet, using a GaInN/ AlGaIn based material.

**CONSTITUTION:** A resonator plane having planarity of good atomic order and extending perpendicularly to a substrate is formed, by cleavage method or selective growth technology, in the waveguide structures 3-7 of AlGaIn based material formed on a semiconductor substrate having Diamond or ZincBlende crystal structure or on a semiconductor or ceramic single crystal substrate 1 having hexagonal system Wurtzite crystal structure. Laser oscillation can be, with the oscillation wavelength in the range of 420-440nm, achieved through optical pumping and current injection at room temperature through the use of the resonator edge.

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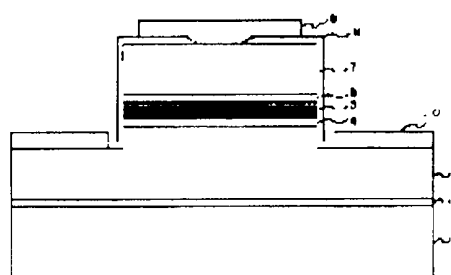
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## (54) SEMICONDUCTOR LASER ELEMENT AND FABRICATION THEREOF

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